

26. ON AN INTERESTING ASSOCIATION OF OPHIUROIDS,
FISH AND CRAB WITH THE JELLYFISH
RHOPILEMA HISPIDUM

(With a plate)

During June-July 1950 several specimens of the Scyphomedusa—*Rhopilema hispidum* Maas were observed very near the shore in the Palk Bay, ca. $9^{\circ} 17' 24''$ N: $79^{\circ} 08' 00''$ E. A specimen measuring 280 mm. in diameter, which was washed ashore on June 19th, was literally covered with ophiuroids (as many as 829) and it was then thought that these might have settled on the medusa after it was washed ashore. Subsequently ten live specimens of the same jellyfish were obtained from the same area and all of them had innumerable ophiuroids in association, (Photo 1). The ophiuroids (Photo 2) have been determined as *Ophiocnemis marmorata* (Lamarck), which is a very common species distributed widely in the tropical seas. So far as we know there is no record of its association with jellyfish. The ophiuroids collected from different medusae were in different stages of development including very young forms as well as adults. It is difficult to adduce any satisfactory explanation for this association but there is reason to believe that the medusae are used not only as a substratum for the growing individuals but it is also likely that they may find the new environment suitable for securing remnants of animals caught by the jellyfish, as ophiuroids are known to be detritus feeders. This association may also help the ophiuroid to get distributed over a wider area.

The medusae were always found to be followed by a group of young fish, which when disturbed take shelter underneath the bell. On July 1st, 1950, 56 fish ranging from 8.5 mm. to 18.0 mm. in length were observed. These fish have been identified as *Caranx kalla* Cuv. & Val. Since Malm (1852) first noticed the association between young fish, *Caranx trachurus* and the medusa, *Cyanea capillata*, several such associations have been recorded especially by Scheuring (1915) and Mortensen (1917). It is believed by some that the young fish collect underneath the jellyfish to feed on the small animals which they capture with their tentacles and the fish in turn do them the service of eating the Hyperias which attack the jellyfish. However, Scheuring op. cit., as a result of experiments conducted arrived at the conclusion that the young of *Gadus merlangus* seek the *Cyanea* exclusively with the object of feeding on its ovaries and tentacles. The same was found to hold good for the young *Caranx*. But Mortensen (1917) is of opinion that these young fish collect around the medusae in order to find shelter, perhaps from strong light, because the fish are often seen collecting under such floating objects as drift-logs and floating leaves. He further remarks that when the weather is dark hardly any are found in this way. He does not, however, deny the possibility of these fish feeding on the animals caught by the tentacles of the jellyfish. It is a well-known fact that several carangids have the habit of gathering below or near floating objects and the fishermen take advantage of this for catching them. So far we have not been able

to find any evidence of these fish feeding on the gonads or the tentacles of the jellyfish.

The following associations have been recorded so far and a fairly complete review of the literature concerning the subject has been given by Scheuring (1915):

<i>Caranx trachurus</i>	<i>Cyanea capillata</i>
<i>Gadus callarias</i>	...
<i>G. merlangus</i>	...
<i>G. aeglefinus</i>	...
<i>Merlangus vulgaris</i>	...
<i>Gadus</i> sp.	<i>Aurelia aurita</i>

Mortensen (1917) has also recorded that he has observed young fish following some small *Rhizostoma*.

In two of the specimens of *Rhopilema hispidum* the Portunid crab *Charybdis annulata* (Fabricius) was also found under the bell of the medusa. This association too has not been recorded before and here again it is not certain whether the crabs feed on the tentacles or the gonads of the jellyfish or on some of the animals caught by the medusa. However, it may be mentioned that both the ophiuroids and crabs are detritus feeders and it is highly probable that they find this association profitable.

We wish to acknowledge our grateful thanks to Dr. A. Clark of the British Museum for naming the ophiuroid and our appreciation of the excellent condition in which the specimens were brought to the laboratory by Sri P. Balaraman Nair.

CENTRAL MARINE FISHERIES
RESEARCH STATION,
MANDAPAM CAMP,
October 1951.

N. K. PANIKKAR
R. R. PRASAD

LITERATURE CITED

Malm, A. W., (1852): Ichthyologiska anmärkningar. *Ofvers. Vetensk. Akad. Förhandl.* Stockholm, **9**; 223-234.

Mortensen, Th., (1917): Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16. I. Observations on protective adaptation and habits, mainly in marine animals. *Vidensk. Medd. fra Dansk naturhist. Foren.*, **69**; 57-96.

Scheuring, L., (1915): Beobachtung über den Parasitismus pelagischer Jungfische. *Biol. Centralblatt*, **35**; 181-190.

27. AN UNUSUAL INFLORESCENCE OF *MORINGA OLEIFERA* LAMK.

(With a photo)

I wish to place on record the description of an unusual inflorescence, noticed in a seven-year old Drumstick tree (*Moringa oleifera* Lamk.) at Saidapet, Madras.

The normal inflorescence of the drumstick tree is a panicle, the flowers forming a short and loose cluster. But in the abnormal inflorescence the flowers were in a fairly dense cluster of the size of